

# OPERATION AND MAINTENANCE PLAN

## FOR

### POULTRY CARCASS COMPOSTING FACILITY

Prepared for: \_\_\_\_\_ County: \_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_

#### General

The operation of a poultry carcass composting facility provides an environmentally safe method of converting dead birds into an odorless, humus-like material that is useful as a soil amendment. This facility is designed for a \_\_\_\_\_ (number) \_\_\_\_\_ (type) operation with an average mortality rate of \_\_\_\_\_ percent. It is not intended to be used for catastrophic losses. One primary bin is provided for each 20,000 birds in a growing cycle. Collect dead birds for composting on a daily basis.

#### Compost Mix

The composting process uses a simple mixture of dry poultry litter, poultry carcasses, straw, and water. Other carbon sources such as hay or sunflower seed hulls may be used in place of straw for a bulking material. The carbon source must be loose enough to provide oxygen penetration. The recommended proportions for loading the primary composting bin to ensure proper growth of the bacteria and fungi needed for decomposition are shown below.

Proportions of Materials Needed in Composing Broilers

Ingredient	Weights in Pounds
Straw	0.1
Dead Birds	1.0
Litter	1.5
Water	0.1*

\* The 0.1 pounds of water per pound of dead poultry is a general recommendation when using dry litter. Adding water may not be necessary. Maintain the moisture content near 55 percent - equivalent to that of a "damp sponge." A moisture problem may be required to insure proper water content. It is important not to over-water, since a mixture that is too wet will not function properly.

### Load the Primary Composting Bins

1. Place 6-12 inches of dry litter on the floor of the bin as a base.
2. Place a 6-inch layer of loose straw on top of the litter.
3. Add a layer of carcasses.
4. Add water as needed.
5. Completely cover the carcasses with 4-6 inches of litter. This will reduce the potential for fly problems.
6. Place a layer of straw over the litter.
7. Repeat steps 3-6 until the bin is full.

Bins should be filled with one layer of carcasses per day. Use additional bins if daily mortality covers more than one layer. Birds must be placed at least 6 inches away from bin walls.

Water (when needed) should be applied onto the birds before the litter is placed on each day's mortality. Moisture may be added by dipping each carcass in water prior to placing the carcass in the bin.

### Monitor Temperatures

Monitor and record the temperature of the compost bins daily using a thermocouple or a 36-inch probe-type thermometer with a rigid protective covering for the probe. The temperature should peak at 140-160 degrees F within a week to ten days after the last layer of dead birds are placed. If minimum temperature of 130 degrees F is not achieved during the composting process in both the primary and secondary stages, repeat the compost process or incorporate the compost immediately after land application.

If temperatures do not get high enough, it is an indication of problems in the composting pile. The most common problem is improper moisture content. To correct a wet pile, turn the pile and add litter. With a dry pile, turn the pile and add water.

If temperatures exceed 160 degrees F, remove the compost from the bin, spread it on the ground in an area away from buildings, and saturate it with water to prevent spontaneous combustion.

### Load the Secondary Composter

Move the material to the secondary composter unit after the primary bin is full and the temperature peaks and begins to drop. Remove the material from the primary bin and allow it to fall as far as possible into the secondary bin. This allows for maximum mixing and aeration of the compost.

Place all products from the primary bin in a single pile to aid the secondary composting stage. The pile should then be sealed with a layer of litter to assure that no carcasses are exposed. This litter will also prevent insect infestation and retain heat.

The temperature of the compost will begin to rise as bacterial activity is renewed and should peak in 7-10 days.

After both stages of composting are complete, the product should be inspected before it is stored or applied to the fields. If carcasses are still present, the pile should be turned for aeration and allowed to compost for another cycle. Water may be needed for this third composting cycle.

In cold weather, warm compost from the secondary bin may be used to start the composting process in the primary bin.

#### Store the Compost

The compost removed from the secondary stage is ready for land application or other use. However, storing or "resting" the compost for 30 days prior to land application allows the compost to dry, providing greater ease in handling.

Do not exceed 7 feet in storage depth, to reduce potential for spontaneous combustion. Do not let this compost come in contact with any manure stored in the same facility.

#### Utilize the Compost

Land application of compost shall be in accordance with NRCS Standard 590, Nutrient Management. The compost should be analyzed by a laboratory to determine the nutrient content.

#### Maintenance

Inspect the composting structure regularly. Replace any broken or badly worn wooden parts or hardware. Patch concrete floors and curbs as necessary to assure water tightness, and repair roof structures as needed.